REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested in view of the foregoing amendments and discussion presented herein.

1. Telephone Communication on August 27, 2007.

Undersigned thanks the Examiner for his time in discussing the rejections in the instant application, even though no agreement was reached. It is believed that this amendment directly addresses the crux of the Examiner's rejections, and that the points herein are sufficient to overcome those rejections.

2. Rejection of Claim 43 under 35 U.S.C. §101.

Claim 43 was rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. The Applicant respectfully disagrees with the Examiner's characterization of computer readable media, and further notes that the statement "[the wording must be changed] to clearly imply that the medium is a computer readable medium that executes the executable instructions" appears to reflect a fundamental misunderstanding of computer readable media. The medium itself does not execute the instructions, it merely contains the instructions. The computer executes the instructions.

The preamble of Claim 43 has been amended, substantially in accordance with the Examiner's suggestion, to read as follows:

> A computer readable medium encoded with a computer program having executable instructions which, when executed by a controller for a video device capable of receiving video streams over a power-line communication network and of outputting video streams to a display device, causes the controller to perform the steps comprising:

It is believed that the amended form of Claim 43 meets the requirements of 35 U.S.C. §101 and clearly sets forth the fact that the medium is computer readable, the medium is encoded with executable instructions, and the instructions are executed by a controller.

3. Bandwidth, Video Compression, and "Dynamic Bandwidth Allocation".

As the Applicant respectfully pointed out in the Examiner interview on August 27, 2007, the concept of "bandwidth", and its relationship with image/video compression, appears to be the subject of confusion in the prosecution of this application. Bandwidth is a merely measure of the capacity of a communications channel, or the amount of information or data that can be sent over a network connection in a given period of time. Please see the attached pages (Exhibit A), which were produced as the result of a Google definition query for the term "bandwidth".

The Examiner appears to equate image/video compression, such as the produced using the MPEG standard, with "dynamic bandwidth allocation". At page 3 of the Office Action, the Examiner states:

> The concept of MPEG is well known in the art of image compression and that the MPEG is known for using the recursive rate control scheme for dynamic, adaptive adjustment and allocation of the appropriate amount of bits to encode image data in the most accurate, efficient manner.

While this statement is true, it has no bearing with respect to the term "bandwidth". The MPEG standard is used to allocate bits for encoding image data, usually resulting in a video data file. MPEG is not concerned with any aspect of a network, except to the extent that smaller files are transferred over a network more quickly than large files. Certainly, more bandwidth is required to transfer larger files, but the MPEG compression itself does not affect the amount of bandwidth available or the division of available bandwidth among competing network devices. Bandwidth is the capacity of the communication channel, and is not used in relation to the data traveling within that channel. MPEG encoding has nothing to do with the allocation of bandwidth on a network, either as commonly understood or as used in the instant application.

The Applicant is uncertain what the Examiner means by "bandwidth" in the context of image and video compression standards, such as MPEG. The uncompressed or compressed video file has no "bandwidth" of its own; it simply has data. Similarly,

during the encoding or compression of a file, be it video or otherwise, there is no "bandwidth" involved. It is not until a file is transferred over a network that any bandwidth is involved, and only to the extent that a portion of the available bandwidth is being used to transfer the file. File transfer is not bandwidth allocation. It is a fundamental mischaracterization of the term "dynamically allocating bandwidth", as described and defined in the instant specification and claims, to believe that merely using bandwidth in file transfer is "dynamically allocating bandwidth".

MPEG is a standard for audio and video compression that is intended to provide high resolution and image quality, preferably without overloading a network during transfer. Thus, the use of MPEG encoding is intended to include the essential information of an image or video file in as little data as possible. In MPEG compression, redundant information is removed from successive frames to reduce the size of the resulting file. The transfer of MPEG-encoded data (or any other data, whether compressed or uncompressed, for that matter) across a network is merely a transfer of data, and is not "dynamically allocating bandwidth", as defined in the instant application. It is improper to believe that simply transferring files over a network amounts to "allocating bandwidth".

The Examiner appears to characterize the operation of an MPEG encoder as "dynamically allocating bandwidth", which is misguided. It could be argued that MPEG dynamically allocates bits in the video data file, but dynamically allocating bits to a file is not the same as dynamically allocating bandwidth over a network. In the simplest example of compressed video transfer, uncompressed video data is compressed/encoded, the compressed video data is then transferred over a network, and the compressed video data is then decompressed/decoded. There is no bandwidth allocation taking place in connection with the compression or decompression of the video data, by either the MPEG standard or by any other video codec. Bandwidth consumption is not dynamic bandwidth allocation. The specification of the instant invention clearly discusses the allocation of bandwidth across devices on a network,

and not merely the compression of image data. The compression itself is entirely ancillary to the allocation.

In contrast, the system of the present invention includes at least one video imaging device on a power-line network. Any network, regardless of its nature, has a bandwidth limit. At any given time, the available bandwidth in the network is allocated to devices on the network, including the video imaging device, and transfer is prioritized. In the instant invention, more bandwidth is allocated to the video device in response to predetermined and event-driven settings. Please see the non-limiting example of bandwidth control shown in Tables 1 and 2 of the instant application, which are discussed in paragraphs [0066] and [0067], as follows:

> [0066] Consider an example of bandwidth control, wherein it is assumed that the total bandwidth of the PLC network 12 is eight megabits per second (8 Mbps) according to a payload rate, while server 16 sends a five megabits per second (5.0 Mbps) video stream to a data storage media on a client, such as for a timer recording (not shown). In this scenario the highest priority (i.e. priority = 1) may be given to the timer-recording stream, with inputs from video camera 20, 22, 24 being at a lower priority (i.e. priority = 2) and held to sending video streams at a one megabits per second (1.0 Mbps) rate from each video camera (i.e. priority level of two). This situation is listed in Table 1.
>
> [0067] Consider that video camera 24 then detects a motion, wherein it communicates the detected motion to 16, which raises the priority of video camera 24 (i.e. priority changes from 2 to 1), while lowering the priority of the timer-recording stream (i.e. priority changed from 1 to 2), and dropping the priority of video cameras 20, 22 down to even a lower priority (i.e. priority = 3). This example situation of bandwidth reallocation is listed in Table 2.

In this example, the bandwidth is allocated between a data storage stream and three video devices. The priority of the data streams is changed by the server in response to activity at one of the video cameras. The camera experiencing activity is also to transfer more data than the other devices on the network. The dynamic allocation of bandwidth, which include both prioritization and redistribution of available

bandwidth, has nothing to do with video compression, MPEG or otherwise.

When the bandwidth allocation changes, the server may direct the video encoder to perform its compression differently, but it is the server that is allocating bandwidth, not the video encoder. The encoder merely encodes at the settings provided. If the server changes the encoder settings in response to bandwidth reallocation, the encoder will encode at the new settings. If the server does not change the encoder settings, the same video stream will be transferred, even if more bandwidth has been allocated. The encoder settings have no effect on the bandwidth. Thus, using MPEG as an example, MPEG compression/encoding affects the size and content of the resulting compressed video file, but MPEG compression/encoding does not affect the portion of available network bandwidth that is allocated to a device on the network. The MPEG-encoded file is sent by the network device over the network within the limited bandwidth that is allocated to that particular network device.

With respect to the Smith reference, U.S. Patent No. 6,757,008, the Examiner claims that "Smith teaches that MPEG compression utilizes dynamic adaptive bandwidth allocation for encoding video image data in an efficient manner" (page 5 of the Office Action) at column 8, lines 23-42. Respectfully, the cited portion of Smith explains the difference between the use of compression algorithms in the Smith invention and in broadcast television. Bandwidth is not mentioned. In fact, the only mention of bandwidth in Smith is in the Background section, in which it is mentioned twice, in the context of analog signals. Bandwidth is not the terminology used for describing image compression. Generally, images are sent over the network after they are compressed. The object of image or video compression is producing smaller files that transfer more quickly. Although it can be said that transferring compressed files uses less bandwidth, or that files are transferred more rapidly on channels having more bandwidth, it cannot be said that transferring compressed files, or merely consuming bandwidth, is the same as dynamically allocating bandwidth across a network.

4. Rejection of Claims 1, 3-12, and 14-44 under 35 U.S.C. § 103(a).

Claims 1, 3-12, and 14-44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramirez-Diaz (U.S. No. 6,476,858) in view of Smith (U.S. No. 6,757,008).

The Examiner concedes that Ramirez-Diaz does not disclose dynamic bandwidth allocation, but believes that Smith discloses dynamic bandwidth allocation, as noted hereinabove.

As noted in the previous response, Smith teaches a video surveillance system having a video data stream that is compressed according to the MPEG standard (col. 3, ll. 4-6). Contrary to the Examiner's assertions, Smith does not disclose dynamic bandwidth allocation. In fact, Smith does not address "bandwidth" at all, only using the term twice, at column 1, line 16, and also at lines 25-26. In both instances, the term "bandwidth" is used with respect to analog video signals.

The portions of Smith cited by the Examiner, col. 8, ll. 23-42, are directed to the use of the MPEG standard to compress a data stream resulting from video surveillance. A data stream from video surveillance is contrasted with a data stream from broadcast television to point out that the MPEG standard is well-suited to the data from video surveillance. The purpose of the invention, as disclosed in Smith, is to obtain video capture data, and to compress that data such that it still contains all the detail of the original image. Smith merely points out that the content of video surveillance data is different than that of broadcast television, which gives rise to its use of particular compression algorithms. Smith does not even remotely address network bandwidth in this discussion. It is improper for the Examiner's to assert that it does.

The cameras in Smith generate a video feed, compress it, and then store the compressed video in a large capacity digital memory (see, e.g., col. 3, ll. 1-6; col. 7, l. 35–col. 10, l. 28). Nowhere in Smith is the bandwidth of a network discussed or allocated. Compressing video is not dynamically allocating bandwidth. The concept of dynamically allocating bandwidth is specifically enumerated in the original specification

at, *inter alia*, paragraphs [0012], [0013], [0017], [0033], [0053], [0056], [0064]-[0070], and [0081]. These discussions of dynamic bandwidth allocation are clearly not equivalent to the mere video compression taught in Smith.

Moreover, the problem solved by the instant invention, as claimed, is not solved by or addressed by Smith or any combination of Smith with Ramirez-Diaz. The instant invention provides a system that dynamically allocates the available bandwidth on a network such that a particular device on the network is favored, based on predetermined and event-driven settings. For example, a motion or temperature sensor located near a video device may indicate that an intruder is nearby. In response, the system can then, without further input, dynamically allocate the available network bandwidth such that video from that particular video device is of higher quality than it was before. The system may update the view through that device more often than before, or more often than any other device on the network. This is merely one possible scenario, and is certainly not the only situation or manner in which the system operates. Smith does not perform this task. The cameras in Smith merely capture video data, compress it, and then store it. Smith cannot render the claimed invention obvious.

5. Amendments to Claims.

Claim 12 has been amended to omit an erroneous word.

Claims 39 and 43 has been amended to more clearly recite dynamic bandwidth allocation.

Claim 43 has been amended in substantial accordance with the Examiner's suggestions, as noted hereinabove.

6. Amendments Made Without Prejudice or Estoppel.

Notwithstanding the amendments made and accompanying traversing remarks provided above, Applicants have made these amendments in order to expedite allowance of the currently pending subject matter. However, Applicants do not

acquiesce in the original ground for rejection with respect to the original form of these claims. These amendments have been made without any prejudice, waiver, or estoppel, and without forfeiture or dedication to the public, with respect to the original subject matter of the claims as originally filed or in their form immediately preceding these amendments. Applicants reserve the right to pursue the original scope of these claims in the future, such as through continuation practice, for example.

7. Conclusion.

Based on the foregoing, Applicants respectfully request that the various grounds for rejection in the Office Action be reconsidered and withdrawn with respect to the presently amended form of the claims, and that a Notice of Allowance be issued for the present application to pass to issuance.

In the event any further matters remain at issue with respect to the present application, Applicants respectfully request that the Examiner please contact the undersigned below at the telephone number indicated in order to discuss such matter prior to the next action on the merits of this application.

Date: September 7, 2007

Respectfully submitted,

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Attachment

Web

Related phrases: bandwidth on demand bandwidth-on-demand video bandwidth bandwidth management dynamic bandwidth allocation bandwidth @ rated power operational bandwidth bandwidth control elements

Definitions of **bandwidth** on the Web:

- A measure of the capacity of a communications channel. The higher a channel's bandwidth, the more information it can carry.
  www.tamu.edu/ode/glossary.html

- The amount of information or data that can be sent over a network connection in a given period of time. Bandwidth is usually stated in bits per second (bps), kilobits per second (kbps), or megabits per second (mps).
  www.tecrime.com/0gloss.htm

- A relative range of frequencies that can carry a signal on a transmission medium.
  www.adaptivedigital.com/services/serv_definitions.htm

- Bandwidth is the amount of data that can be transferred over the network in a fixed amount of time. On the Net, it is usually expressed in bits per second (bps) or in higher units like Mbps (millions of bits per second). 28.8 modem can deliver 28,800 bps, a T1 line is about 1.5 Mbps.
  www.hosttrail.com/glossary/b/

- A measure of spectrum (frequency) use or capacity. For instance, a voice transmission by telephone requires a bandwidth of about 3000 cycles per second (3 KHz). A TV channel occupies a bandwidth of 6 million cycles per second (6 MHz) in terrestrial Systems. In satellite based systems a larger bandwidth of 17.5 to 72 MHz is used to spread or "dither" the television signal in order to prevent interference.
  www.spidersat.net/glossary/glossary_b.htm

- The range of frequencies, expressed in hertz (Hz), that can pass over a given transmission channel. The bandwidth determines the rate at which information can be transmitted through the circuit.
  www.ssloral.com/html/products/glossary.html

- The information carrying capacity of the fiber. The bandwidth for a given wavelength is the lowest frequency at which optical power has decreased by 3 dB, expressed in MHz-km. At frequencies higher than the recommended bandwidth, modal dispersion creates distortion making signals unreadable.
  www.iec-usa.com/Browse02/GLSB.html

- is the difference between the lowest and highest frequency components of a signal or device.
  dspvillage.ti.com/docs/catalog/dspplatform/details.jhtml

- is the amount of information that may be transmitted at any given time along a data line and is usually measured in Megabits per second. An analogy would be a water pipe where a larger diameter pipe can carry more water per second than a narrow pipe.
  www.smallbizonline.co.uk/glossary_of_internet_terms.php

- Bandwidth refers to how fast data flows through the path that it travels to your computer; it's usually measured in kilobits, megabits or gigabits per second.
  largebande.gc.ca/pub/technologies/bbdictionary.html

EXHIBIT A

- Maximum rage of signal frequencies, amount of data, or number of users a data carrier can handle.
  www.angelfire.com/bc/nursinginformatics/glossary.html

- A measure of the amount of data that can travel through a network. Usually measured in kilobits per second (Kbps). For example, a modem line often has a bandwidth of 56.6 Kbps, and an Ethernet line has a bandwidth of 10 Mbps (10 million bits per second). Bit Rate - The number of bits transmitted per second. In theory, a 56 Kbps modem, for example, can transmit up to 56,000 bits per second.
  media.ucsc.edu/glossary.html

- The complete range of frequencies over which a circuit or electronic system is allocated to function. In transmission, the US analog and digital television channel bandwidth is 6 MHz.
  www.wgcu.org/watch/hdtv_glossaryofterms.html

- The range of frequencies a channel can carry. The higher the frequency, the higher the bandwidth and the greater the capacity of a channel. In Internet terms, higher bandwidth means a higher ability to transmit and receive data.
  www.7designavenue.com/glossary.htm

- A measurement of a network's transmission speed, how much data a network can transfer in a given amount of time.
  www.education-world.com/help/glossary.shtml

- Bandwidth is the amount of information your connection to the Internet can carry. On average, typical telephone lines can carry 1K of information per second.
  www.zacsdesign.com/edu/basic_multimedia_glossary.htm

- The range of frequencies in a signal.
  www.trimble.com/gps/glossary.html

- The amount of data that can be transmitted in a fixed amount of time. For digital devices, the bandwidth is usually expressed in bits per second (bps) or bytes per second. For analog devices, the bandwidth is expressed in cycles per second, or Hertz (Hz).
  precisecyberforensics.com/glossary.html

- Commonly referred to as the amount of data that can be transferred over a network connection. Bandwidth is normally measured in megabits per second (Mbps). Simple HTML web pages do not require a large amount of bandwidth but full motion video will be viewed better on higher bandwidth.
  www.liv.ac.uk/webteam/glossary/

- the amount of data that can be transmitted via a given communications channel (eg, between a hard drive and the host PC) in a given unit of time.
  www.sunrise.uk.com/glossary.html

- The difference between the highest and lowest frequencies available for network signals. The term is also used to describe the rated throughput capacity of a given network medium or protocol. In short, bandwidth is a loose term used to describe the throughput capacity (measured in Kilobits or Megabits per second) of a specific circuit. For example, each time a webpage, image, midi file, wav file, etc. is loaded, bandwidth is generated.
  customersupport.websiteproviders.net/glossary/b/

- The maximum data carrying capacity of a transmission link. For networks, bandwidth is usually expressed in bits per second (bps).
  www.voip-architecture.com/glossary/glossary.html

- Amount of traffic transmitted from the site.
  www.weblogexpert.com/help/wlexpert/source/Common/Glossary.htm

- This is a measure of the amount of data that can be transmitted over communication or network lines via the Internet. The higher the bandwidth, the great the amount of information that can be transmissed.
  www.teach-nology.com/glossary/terms/b/

- In computer networks, bandwidth is often used as a synonym for data transfer rate - the amount of data that can be carried from one point to another in a given time period (usually a second). This kind of bandwidth is usually expressed in bits (of data) per second (bps). Occasionally, it's expressed as bytes per second (Bps). A modem that works at 57,600 bps has twice the bandwidth of a modem that works at 28,800 bps.
  www.webasyst.net/glossary.htm

- a data transmission rate; the maximum amount of information (bits/second) that can be transmitted along a channel

  wordnet.princeton.edu/perl/webwn

- For analog signals, bandwidth is the width, usually measured in hertz, of a frequency band f2 − f1. It can also be used to describe a signal, in which case the meaning is the width of the smallest frequency band within which the signal can fit.
  en.wikipedia.org/wiki/Bandwidth

- In the mathematical subfield of numerical analysis a sparse matrix is a matrix populated primarily with zeros. A sparse graph is a graph with a sparse adjacency matrix.
  en.wikipedia.org/wiki/Bandwidth_(matrix_theory)

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